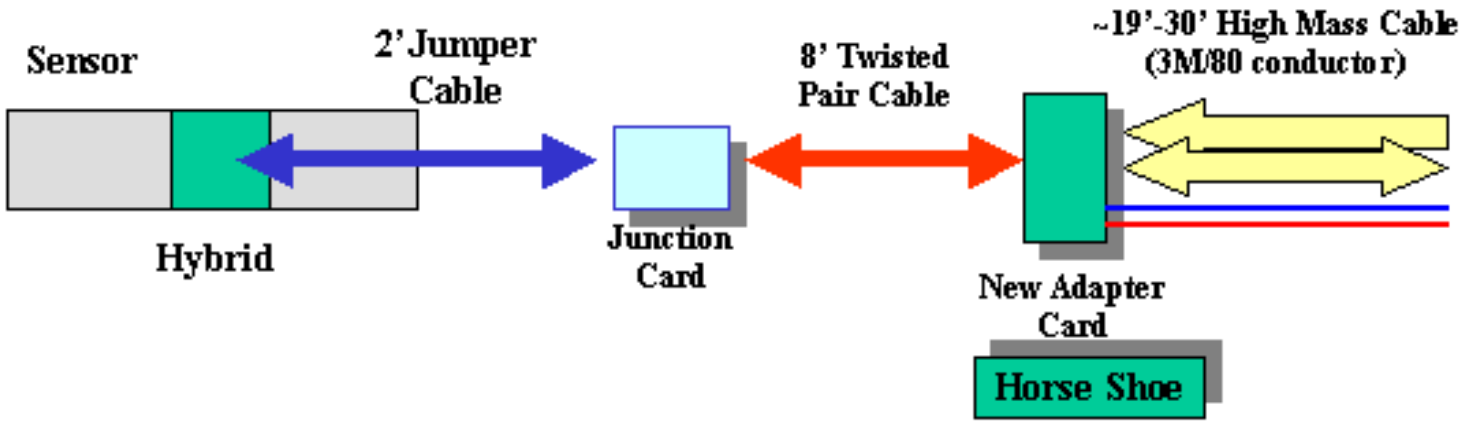
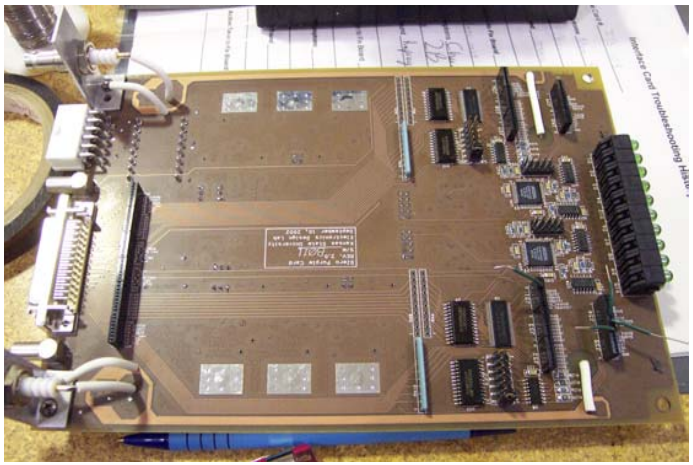
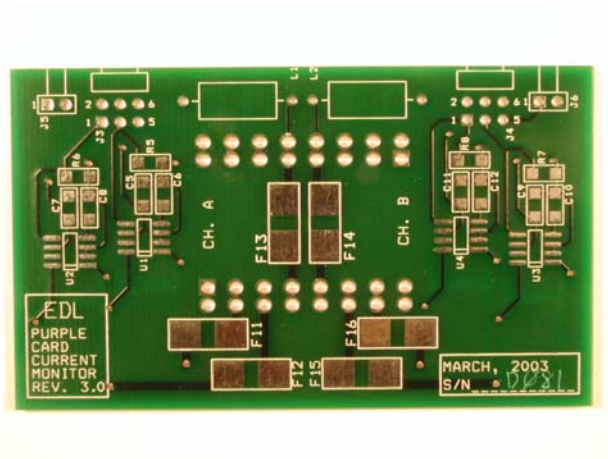
Electronics: Rev 2 Adapter Card, Purple Card, ….

Ron Sidwell, K. Harder, T. Sobering, N. Stanton, R. Taylor, E. VonToerne, *The Kansas State U.*



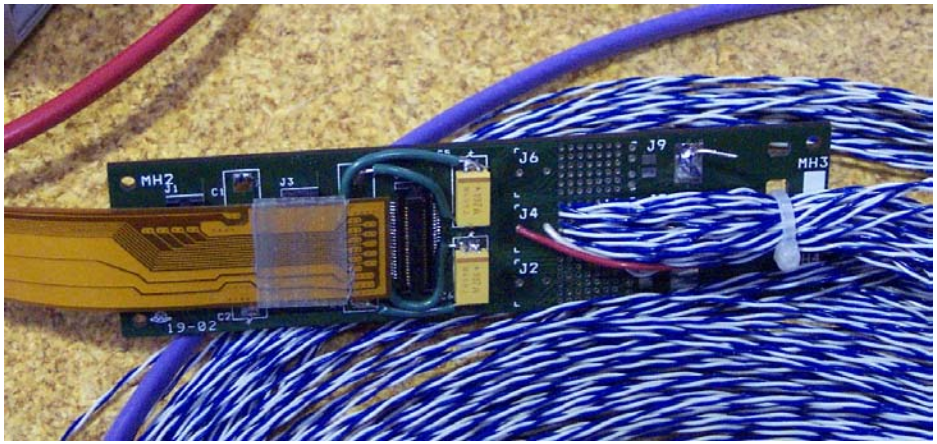
Rev 3 Purple Card Status





- Current monitor daughter-cards built and are being stuffed and tested.
- Adapter card purchase order placed with Millennium.
- First PCB fab failed- all 85 cards rejected.
- 2nd fab underway, should get three on Mon or Tues.
- Stuff and test this week.
- If OK, first production items ~May 10. All done by late May or early June.

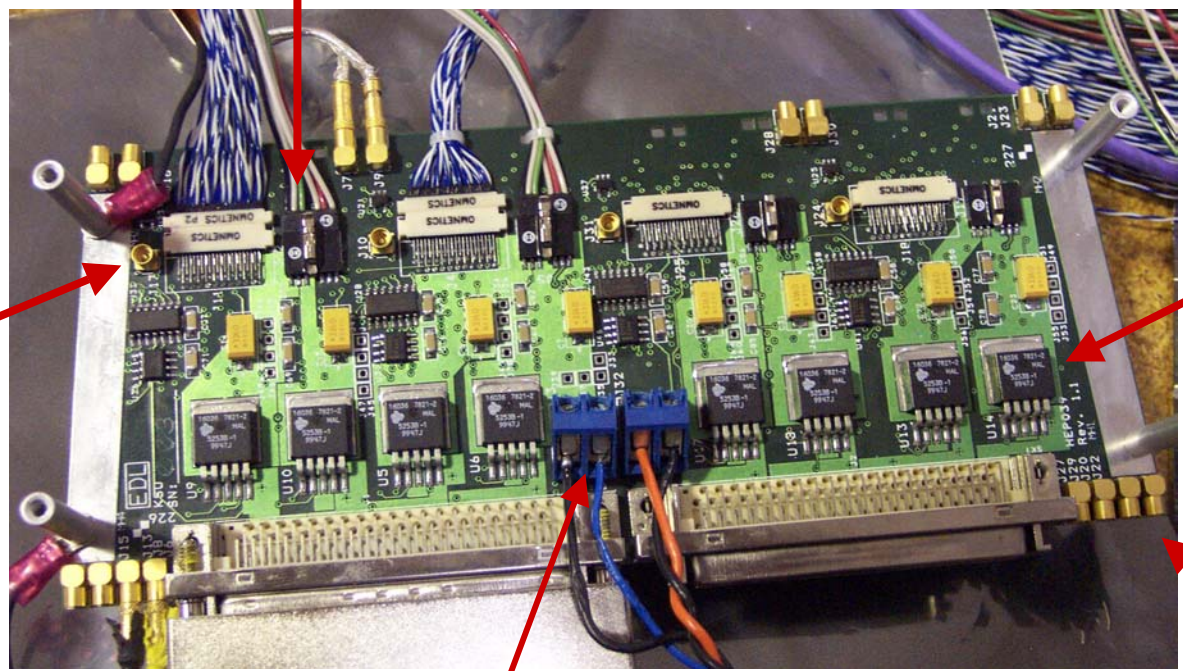
Junction Card Update



Joins twisted pair to digital jumper cable. Mounted at current position of H-disks. Ye olde L0-L1 prototype is illustrated.

- L2-L5 prototype layout being modified to accommodate revised twisted pair connector space needs. Connectors for Twisted-pair; solder clocks and power.
- Other layout specs modified in mini-workshop at KSU Apr 16-17.
- New layout ready soon and will be posted on website.
- Plan: build ~12 (plus some extra unstuffed PCBs) by late-June.

Rev 1 Adapter card



Issues at the Dec '02 Workshop

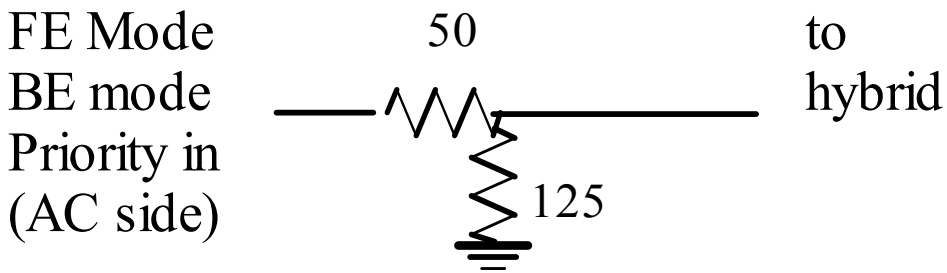
- Power, can we use one regulator, one power supply? **YES**.
- Heat sinking. Measure del-T before and after with current setup. In progress.
- Size, shape of adapter card finalized. **YES**
- Termination of single-ended lines (Utes, AN). See slides in this talk. **YES**.
- Priority-in is too large (> 3V). Terminate at hybrid. **YES**
- Can we bypass clocks? **YES**

REV2 Change List (1)

- Removed four DVDD regulators. Now one regulator for each hybrid channel.
- Board power is now supplied through the 80 pin connector from the Interface Board. See Andrei's talk on power distribution.
- 44 pin connector signals reflect new twisted pair cable spreadsheet.
- Clock signals removed from the Adapter Card.
- Cal-SR connectors removed. Will not be wired on horseshoe (900 cables!).

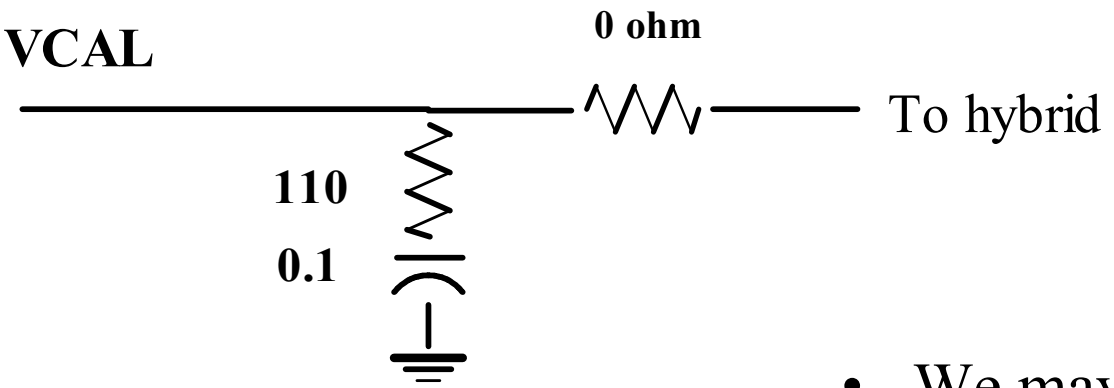
Rev 2 change list (2)

- Change Mode termination: 0 ohm series at AC, terminate on hybrid.
- Priority-in, FE mode, BE mode lines: 50 ohm series followed by 125 ohm to ground.



- L1 accept, PRD2, etc terminate at hybrid as needed.

Change list(3)



- We may choose to no longer supply Vcal externally- so in that case leave 0-ohm unstuffed.
- NO FUSES! Use current trips on interface board.

Rev 2 adapter card Cooling

General scheme for cooling:

1. Horseshoe is cooled to 20 deg C (high T due to concern about dew point and condensation). Transfer heat from adapter card to horseshoe via six standoffs.
2. Beef up the two Cu planes in AC from 0.5oz to 2 or 2.5oz(2.8-3.5mils).
3. Place machined Cu plates across SVX regulators (1.2w each) on top, and across drivers on bottom of board. Need ~2-3mm thick by ~15mm wide.
4. Strive for < 35 deg chip temperature ($\Delta T < 15$ degrees C) on card.
5. Report in ~ couple of weeks.

Rev 2 AC Mechanical, Schedule

- Russell's new card has NO traces crossing the median- thus easy to modify for two-channel version. Just snap on the dotted line….

- Build 12 Rev 2 Adapter cards, plus 8 spare boards by late June.